IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

ANGUS O. DOUGHERTY ET AL.

Group Art Unit: 2616

Examiner: Daniel J. Ryman

Serial No.: 09/605,696

Filed: June 28, 2000

For: DISTRIBUTIVELY ROUTED VDSL AND HIGH-SPEED INFORMATION PACKETS

Attorney Docket No.: 1759CIP (USW 0577 PUS)

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an Appeal Brief in support of the Notice of Appeal filed November 19, 2007 for the above-identified patent application.

I. REAL PARTY IN INTEREST

The real party in interest is Qwest Communications International Inc. ("Assignee"), a corporation organized and existing under the laws of the state of Delaware, and having a place of business at 1801 California Street, Suite 5100, Denver, Colorado, 80202, as set forth in the assignment recorded in the U.S. Patent and Trademark Office on June 28, 2000, at Reel 010918/Frame 0830, and on July 24, 2000, at Reel 010814/Frame 0339.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences known to the Appellants, the Appellants' legal representative, or the Assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 10-46 are pending. Claims 10-46 are rejected and are the subject of this appeal. Claims 1-9 have been cancelled.

IV. STATUS OF AMENDMENTS

None.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 10 provides a method of distributing high-speed information packets to at least one subscriber unit, each information packet associated with an information channel. The method includes routing each information packet through a distributed network of routing elements, Application, p. 11, ll. 1-10, each routing element in wireless communication with at least one other routing element in the network of routing elements, Application, p. 10, ll. 24-30. The method also includes receiving each information packet in a distribution center in communication with the distributed network of routing elements, Application, p. 10, ll. 6-20; p. 13, ll. 1-14, and forwarding each information packet to each subscriber unit in communication with the distribution center and requesting the information channel of which the information packet is associated, Application, p. 10, ll. 6-20; p. 13, ll. 1-14.

Claim 20 provides a system for providing high-speed packetized information comprising a distributed routing network. The distributed routing network comprising a plurality of distribution points, Application, p. 11, ll. 1-10, each distribution point in the plurality of distribution points in radio contact with at least one other distribution point in the

plurality of distribution points, Application, p. 10, ll. 24-30. At least one of the plurality of distribution points comprising at least one host digital terminal (HDT) for converting high-speed information packets to an optical format and forwarding the information packets to subscriber units. Application, p. 23, ll. 22-31.

Claim 28 provides a system for providing packetized video information to a plurality of subscriber units comprising a distributed routing network. The distributed routing network comprising a plurality of distribution points, Application, p. 11, ll. 1-10, each distribution point in the plurality of distribution points in radio contact with at least one other distribution point in the plurality of distribution points, Application, p. 10, ll. 24-30. At least one of the plurality of distribution points functioning as a video distribution center. Application, p. 24, ll. 19-24.

Claim 31 provides a system for providing packetized video information to a plurality of subscriber units. The system includes a distributed routing network, the distributed routing network comprising a plurality of distribution points, Application, p. 11, ll. 1-10, each distribution point in the plurality of distribution points in radio contact with at least one other distribution point in the plurality of distribution points, Application, p. 10, ll. 24-30. The system also includes at least one access point in communication with the distributed routing network functioning as a video distribution center. Application, p. 23, l. 22 - p. 24, l. 24.

Claim 36 provides a system for distributing high-speed information packets to at least one subscriber unit, each information packet associated with an information channel. The system includes a distributed network of routing elements for routing each information packet, Application, p. 11, ll. 1-10, each routing element in wireless communication with at least one other routing element in the network of routing elements, Application, p. 10, ll. 24-30. The system also includes at least one distribution center in communication with the distributed network of routing elements and with at least one subscriber unit, each distribution

center forwarding each information packet to each subscriber unit requesting the information channel associated with each information packet. Application, p. 10, ll. 6-20; p. 13, ll. 1-14.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 10-14, 20-28 and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,304,578 (Fluss) in view of U.S. Pat. No. 6,366,584 (Gulliford). Claims 15-17, 19, 29, 30, 41-43, 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fluss in view of Gulliford and in further view of U.S. Pat. No. 6,009,099 (Lewis). Claims 18 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fluss in view of Gulliford, in further view of Lewis, and in still further view of U.S. Pat. No. 6,052,744 (Moriarty). Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fluss in view of U.S. Pat. No. 7,016,308 (Gallagher) and in further view of Gulliford. Claims 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fluss in view of Gallagher, in further view of Gulliford, and in still further view of Lewis.

VII. ARGUMENT

A. Claims 10-14, 20-28 and 36-40 are rejected under 35 U.S.C. 103(a) over Fluss in view of Gulliford

With regard to claims 10 and 36, Fluss does not teach forwarding each information packet to each subscriber unit in communication with the distribution center and requesting the information channel of which the information packet is associated. To find this limitation, the Examiner cites the following passages of Fluss:

> Headend 103 supports a plurality of shared data channels, each utilizing a coaxial cable, such as shared channel 110. Thus, for example, one set of users or subscribers, such as user 120, uses shared channel 110, which is serviced by queue 106 of router 105. Queue 106 is a buffer which stores a number of queued data packets, preferably in FIFO order, which have not yet been routed to particular users of shared channel 110. Router 105

> routes queued data packets to the appropriate users of shared channel 110, and may be implemented by cable modem terminating equipment . . . .
>
> Fluss, col. 4, ll. 33-41.

The above merely indicates that "router 105 routes queued data packets to the appropriate users of shared channel 110," Fluss, col. 4, ll. 39-40. Nothing in the above, however, teaches forwarding each information packet to each subscriber unit requesting the information channel of which the information packet is associated. Moreover, the Examiner admits that Fluss and Gulliford lack this teaching: "Fluss in view of Gulliford does not expressly disclose receiving a request from a subscriber unit to access an information channel . . .," Office Action, August 17, 2007, p. 10. If, as the Examiner admits, Fluss and Gulliford do not teach receiving a request from a subscriber unit to access an information channel, then Fluss and Gulliford cannot teach forwarding each information packet to each subscriber unit requesting the information channel of which the information packet is associated.

With regard to claims 10 and 36, the Examiner asserts that "it would have been obvious . . . to use a wireless network, as disclosed in Gulliford, to connect the headend of Fluss with the web server of Fluss since this offers high bandwidth, rapid deployment, and incremental deployment costs." The Examiner's reasoning, however, impermissibly relies on hindsight. While "high bandwidth, rapid deployment, and incremental deployment costs" may be reasons to deploy the point to point radios of Gulliford as opposed to land-based communications technologies, "high bandwidth, rapid deployment, and incremental deployment costs" have nothing to with

> a router [that] assigns high transmittal priority to data packets addressed to users who have more recently received a previous data packet and [that] assigns low transmittal priority to data packets addressed to users who have relatively less recently

> received a previous data packet, wherein the low transmittal priority is a lower priority than the high transmittal priority.
>
> Fluss, Abstract.

As such, one of ordinary skill would not have had reason to combine Gulliford with Fluss.

The Examiner asserts that "Fluss is not directed to existing infrastructure only, which at the very least suggests that Fluss's system is applicable to new infrastructure." Office Action, August 17, 2007, p. 2. The Examiner's assertion, however, is not supported by the teachings of Fluss. Fluss does not appear to discuss deploying new networks. Rather, Fluss presupposes that the networks already exist:

> Data packet communication on the Internet is dominated by traffic transported using the transport communication protocol/Internet protocol (TCP/IP) suite of protocols.
>
> Fluss, col. 1, ll. 12-14.

> Thus, in many networks such as the currently-configured world-wide web (WWW) of the Internet, a user is faced by highly variable latency and throughput, due to the queuing behavior caused by the unavoidable bandwidth limitations of such networks and distribution systems.
>
> Fluss, col. 2, ll. 42-47.

> FIG. 1 is a block diagram of a cable modem system 100 architecture, in accordance with an embodiment of the present invention. System 100 contains a headend 103, which itself contains an Ethernet hub (or switch) 104. Headend 103 is coupled to router 102 in the backbone network of the ISP, which is itself coupled to the Internet. Router 102, which also contains various switches and other components, routes data packets received from Internet 101 to the appropriate headend, such as headend 103.
>
> Fluss, col. 4, ll. 21-29.

As such, Fluss does not appear to contemplate deploying new networks to which its headend may connect. Rather, Fluss attempts to improve the apparent throughput associated with these existing networks at the expense of latency:

> The present invention addresses the aforementioned problems and improves perceived performance, by trading latency at the last router (i.e., the headend router that delivers received packets to the specified user attached to a shared data channel controlled by the headend) for improved throughput.
>
> Fluss, col. 3, ll. 46-51.

Given the above considerations, the mere fact that the headend of Fluss is connected with the Internet, see, Fluss, Figure 1, and that Gulliford discloses a wireless network, see, Gulliford, Abstract, is not, in and of itself, sufficient reason to combine the references.

With regard to claim 20, Fluss does not teach at least one of the plurality of distribution points comprising at least one host digital terminal (HDT) for converting high-speed information packets to an optical format and forwarding the information packets to subscriber units. To find this limitation, the Examiner cites the following passages of Fluss:

> Headend 103 supports a plurality of shared data channels, each utilizing a coaxial cable, such as shared channel 110. Thus, for example, one set of users or subscribers, such as user 120, uses shared channel 110, which is serviced by queue 106 of router 105. Queue 106 is a buffer which stores a number of queued data packets, preferably in FIFO order, which have not yet been routed to particular users of shared channel 110. Router 105 routes queued data packets to the appropriate users of shared channel 110, and may be implemented by cable modem terminating equipment . . . . Each router such as router 105 controls bandwidth and spectrum usage in one or more coaxial cable plant (or hybrid fiber/coax plant), manages the attached cable modems, and connects to a network interface in the headend, such as Ethernet hub 104.
>
> Fluss, col. 4, ll. 32-49.

The Examiner thus asserts that because "router 105 [of Fluss] controls . . . usage in one or more . . . hybrid fiber/coax plant," that "headend 103" of Fluss necessarily is a host digital terminal for converting high-speed information packets to an optical format. Applicants' Attorney submits that Fluss does not explicitly disclose such teaching and that the Examiner has not provided any explanation supporting the assertion.

With regard to claim 20, the Examiner asserts that "it would have been obvious . . . to have each distribution point be in wireless communication with at least one other distribution point to deploy the distributed network in a manner that offers high bandwidth, rapid deployment, and incremental deployments costs." Office Action, August 17, 2007, p. 7. The Examiner's reasoning, however, impermissibly relies on hindsight for the reasons explained above with reference to claims 10 and 36.

With regard to claim 28, Gulliford does not teach at least one of the plurality of distribution points functioning as a video distribution center. The Examiner asserts that "[i]t is implicit that any distribution center that distributes video information to subscribers, as

broadly defined, is a 'video distribution center' since it distributes the video to the subscribers." Office Action, August 17, 2007, p. 10. The Examiner's interpretation of the claimed phrase "video distribution center" is overly-broad given the Applicants' definition provided in the Application. The claimed "video distribution center" is more than merely a "distribution center that distributes video information to subscribers":

> Referring now to Figure 12, a flow diagram illustrating reception of a request for a video channel by a VDC according to an embodiment of the present invention is shown. The VDC receives a request from subscriber unit 26 to access a video channel in block 600. This request may be received as a message generated by user selection, such as by changing the channel on an entertainment receiver, or by having subscriber unit 26 enter coverage area 24 controlled by a routing element functioning as the VDC such as access point 22 or distribution point 40.
>
> A check is made to determine if another subscriber unit 26 served by the VDC is receiving the requested video channel in block 602. If not, the VDC requests that information packets for the video channel be transmitted to the VDC in block 604. In an embodiment, the VDC gives a dummy address as the destination for the requested video channel information packets. This dummy address may be the IP or ATM address of the VDC, or may be the address of a fictitious subscriber unit 26 assigned to the VDC. The dummy address permits various subscriber units 26 to request and terminate a video channel from the VDC without disturbing any distribution to other subscriber units 26 that may be receiving the same video channel through the VDC.
>
> A notation is made that the requesting subscriber unit 26 is receiving the video channel in block 606. This may be done by keeping a simple table of subscriber units 26 and received video channels, by entries into a database, by creation of objects holding the subscriber unit 26 and video channel information, or by any other method of mapping subscriber units 26 and video channels. This notation is preferably kept by the VDC but may

also be kept by the video channel provider, supervisor 56, or any other suitable component. The notation is used by the VDC to replicate or broadcast each video packet to all subscriber units 26 requesting the video channel containing the video packet.

Referring now to Figure 13, a flow diagram illustrating termination of a request for a video channel by a video distribution center according to an embodiment of the present invention is shown. The VDC determines that subscriber unit 26 is no longer accessing a particular video channel in block 610. This determination may be based on receiving a message from subscriber unit 26 that the video channel is no longer needed or may be based on determining that subscriber unit 26 is no longer in coverage area 24 served by the VDC.

A check is made in block 612 to determine if any other subscriber unit 26 is receiving the video channel. If no other subscriber unit 26 is receiving the video channel, channel transmission is canceled in block 614. A notation is made that subscriber unit 26 is no longer receiving the video channel in block 616.

Application, p. 25, l. 25 - p. 27, l. 4.

With regard to claim 28, the Examiner asserts that "it would have been obvious . . . to have each distribution point be in wireless communication with at least one other distribution point to deploy the distributed network in a manner that offers high bandwidth, rapid deployment, and incremental deployment costs." Office Action, August 17, 2007, p. 10. The Examiner's reasoning, however, impermissibly relies on hindsight for the reasons explained above with reference to claims 10 and 36.

Claims 11-14 are patentable because they depend from claim 10.

Claims 21-27 are patentabe because they depend from claim 20.

Separately, with regard to claim 27, the Examiner asserts that "a distribution point is, as broadly defined, a 'video distribution center,' since the router distributes video information." Office Action, August 17, 2007, p. 9. The Examiner's interpretation of the claimed phrase "video distribution center" is overly-broad given the Applicants' definition provided in the Application. For the reasons explained above with reference to claim 28, the claimed "video distribution center" is more than merely a "router [that] distributes video information."

Claims 37-40 are patentable because they depend from claim 36.

B. Claims 15-17, 19, 29, 30, 41-43, 45 and 46 are patentable under 35 U.S.C. 103(a) over Fluss in view of Gulliford and in further view of Lewis

Claims 15-17 and 19 are patentable because they depend from claim 10.

Separately, with regard to claim 15, Lewis does not teach noting that the requesting subscriber unit is receiving the requested information channel. To find this limitation, the Examiner cites the following passages of Lewis:

> When a new video channel is requested, the delivery of the old video channel to the set top unit 22 of the video subscriber needs to be terminated. Cell multiplexing unit 20 maintains a count of the number of set top units 22 watching each active video channel and the number of video channels currently being received.
>
> Lewis, col. 3, ll. 4-9, (emphasis added).

A "count," i.e., a number, does not note which subscriber unit is receiving which requested information channel. The Applicants' explain that

> A notation is made that the requesting subscriber unit 26 is receiving the video channel in block 606. This may be done by keeping a simple table of subscriber units 26 and received video channels, by entries into a database, by creation of objects holding the subscriber unit 26 and video channel information, or by any other method of mapping subscriber units 26 and video channels. This notation is preferably kept by the VDC but may also be kept by the video channel provider, supervisor 56, or any other suitable component. The notation is used by the VDC to replicate or broadcast each video packet to all subscriber units 26 requesting the video channel containing the video packet.
>
> Application, p. 26, ll. 13-21, (emphasis added).

The "count" of Lewis does not map subscriber units with information channels.

With regard to claim 15, the Examiner asserts that "it would have been obvious [to combine the teachings of Fluss, Gulliford and Lewis] since this decreases bandwidth requirements in a network for the efficient delivery of video information." Office Action, August 17, 2007, p. 11. One of ordinary skill, however, would not have had reason to combine the teachings of Fluss, Gulliford and Lewis because, as explained below, doing so would impermissibly change Fluss' principle of operation. See, MPEP 2143.01(VI).

Fluss states that "[R]outer 105 routes queued data packets to the appropriate users of shared channel 110, and may be implemented by cable modem terminating equipment . . . ." Fluss, col. 4, ll. 39-41. Receiving a request from a subscriber unit to access an information channel does not appear to have anything to do with "rout[ing] queued data packets," col. 4, l. 39, that have been assigned a transmittal priority based on whether a user has more recently received a previous data packet, see, Fluss, Abstract. As such, the Examiner's suggestion that one of ordinary skill would have had reason to modify the router of Fluss with the teachings of Gulliford and Lewis lacks technical merit.

Separately, with regard to claim 19, Lewis does not teach noting that the subscriber unit is no longer receiving the information channel. To find this limitation, the Examiner cites the following passages of Lewis:

> Cell multiplexing unit 20 maintains a count of the number of set top units 22 watching each active video channel and the number of video channels currently being received. When the number of set top units 22 providing a specific video channel to the video subscribers reaches zero, the specific video channel is linked to a list of video channels to be deleted.
>
> Lewis, col. 3, ll. 6-12.

Because the "count" of Lewis does not map subscriber units with information channels, linking "the specific video channel . . . to a list of video channels to be deleted" when "the number of set top units . . . reaches zero," Lewis, col. 3, ll. 11-12, does teach noting that the subscriber unit is no longer receiving the information channel.

Claims 29 and 30 are patentable because they depend from claim 28.

Separately, with regard to claims 29 and 30, the Examiner asserts that "it would have been obvious [to combine the teachings of Fluss, Gulliford and Lewis] since this decreases bandwidth requirements in a network for the efficient delivery of video information." Office Action, August 17, 2007, p. 13. One of ordinary skill, however, would not have had reason to combine the teachings of Fluss, Gulliford and Lewis because doing so would impermissibly change Fluss' principle of operation, see, MPEP 2143.01(VI), for the reasons explained above with reference to claim 15.

Claims 41-43, 45 and 46 are patentable because they depend from claim 36.

Separately, with regard to claims 41, the Examiner asserts that "it would have been obvious [to combine the teachings of Fluss, Gulliford and Lewis] since this decreases bandwidth requirements in a network for the efficient delivery of video information." Office Action, August 17, 2007, p. 11. One of ordinary skill, however, would not have had reason to combine the teachings of Fluss, Gulliford and Lewis because doing so would impermissibly change Fluss' principle of operation, see, MPEP 2143.01(VI), for the reasons explained above with reference to claim 15.

C. Claims 18 and 44 are patentable under 35 U.S.C. 103(a) over Fluss in view of Gulliford, in further view of Lewis, and in still further view of Moriarty

Claim 18 is patentable because it depends from claim 10.

Separately, with regard to claim 18, Moriarty does not teach transmitting a dummy address as the destination for the requested transmission of the requested information channel. To find this limitation, the Examiner cites the following passages of Moriarty:

> Preferably, the video request queue head register RQ_1_REG corresponds to the video request channel 602, the video sub-picture request queue head register RQ_2_REG corresponds to the video sub-picture request channel 606, and the audio request queue head register RQ_3_REG corresponds to the audio request channel 610. The request queue head registers (RQ_n_REG) 290 are 32-bit registers for storing the 32-byte aligned physical address of where the next request packet 250 has been placed by the device driver 230. Each RQ_n_REG 290 is initialized by the device driver 230 during system initialization with the physical address of a "dummy" packet 250 corresponding to request channels. Thereafter, the RQ_n_REG 290 is maintained by the DBE device 206. To implement this procedure, the DBE device 206 latches processor 100 writes to bits [31:5] of this register when the DBE device 206 is in RESET mode (EN_REG[0]="1"). The DBE device 206

> assumes bits [4:0] of the physical address contain "0's." The DBE device 206 uses this register to fetch packets 250.
>
> Moriarty, col. 19, ll. 53-67.

The "dummy" packet of Moriarty, however, is part of a linked list scheme:

> DummyPacket This field points to a dummy command packet used by the device driver 230 to ensure a packet on the tail of the request queue does not reference itself. This condition can occur if the last submitted packet is retumed to the free queue before another packet gets allocated and submitted to the controller 125. An allocate packet routine checks for this condition before returning the packet address to the caller. If the packet removed from the free queue happens to be the last packet submitted to the DBE device 206, the allocate packet routine swaps the removed packet address with the DummyPacket address.
>
> Moriarty, col. 17, ll. 19-30.

The "dummy" packet of Moriarty is not the claimed dummy address. Additionally, Moriarty does not teach transmitting a dummy address, or a dummy packet, as the destination for the requested transmission of a requested information channel.

With regard to claim 18, the Examiner states that "it would have been obvious [to combine the teachings of Fluss, Gulliford, Lewis and Moriarty] to transmit a dummy address as the destination for the requested transmission of the requested information channel since such a packet can be quickly discarded from the system." Office Action, August 1, 2007, p. 14. Applicants' Attorney submits that the use of four references, given the technology, in and of itself, is evidence that one of ordinary skill would not have had reason to combine the references. Nevertheless, assuming, *arguendo*, that Fluss, Gulliford, Lewis and Moriarty teach all the limitations of claim 18, the Examiner's reason for combining the references lacks technical merit. Fluss indicates that

> A headend of a shared data channel receives data packets, each data packet being addressed to a user of the shared data channel. A buffer of the headend queues the data packets, and a router of the headend assigns high transmittal priority to data packets addressed to users who have more recently received a previous data packet and assigns low transmittal priority to data packets addressed to users who have relatively less recently received a previous data packet, wherein the low transmittal priority is a lower priority than the high transmittal priority.
>
> Fluss, Abstract.

Fluss then "routes queued data packets to the appropriate users . . . ." Col. 4, ll. 39-40. "[Q]uickly discard[ing packets] from the system," Office Action, August 17, 2007, p. 14, of Fluss does not appear to serve any purpose: why would Fluss discard prioritized packets that it intends to route, *a fortiori*, quickly discard such packets?

In contrast, Applicants explain that

> A check is made to determine if another subscriber unit 26 served by the VDC is receiving the requested video channel in block 602. If not, the VDC requests that information packets for the video channel be transmitted to the VDC in block 604. In an embodiment, the VDC gives a dummy address as the destination for the requested video channel information packets. This dummy address may be the IP or ATM address of the VDC, or may be the address of a fictitious subscriber unit 26 assigned to the VDC. The dummy address permits various subscriber units 26 to request and terminate a video channel from the VDC without disturbing any distribution to other subscriber units 26 that may be receiving the same video channel through the VDC.
>
> Application, p. 26, ll. 3-12, (emphasis added).

Claim 44 is patentable because it depends from claim 36.

Separately, claim 44 is patentable for the reasons claim 18 is patentable.

D. Claim 31 is patentable under 35 U.S.C. 103(a) over Fluss in view of Gallagher and in further view of Gulliford.

With regard to claim 31, it would not have been obvious to one of ordinary skill to combine the teachings of Fluss and Gulliford for the reasons explained above with reference to Claim 10.

With regard to claim 31, the Examiner asserts that "a distribution point, as broadly defined, is a 'video distribution center,' since the router distributes video information." Office Action, August 17, 2007, pp. 15-16. The Examiner's interpretation of the claimed phrase "video distribution center" is overly-broad given the Applicants' definition provided in the Application. For the reasons explained above with reference to claim 28, the claimed video "video distribution center" is more than merely a "router [that] distributes video information."

E. Claims 32-35 are patentable under 35 U.S.C. 103(a) over Fluss in view of Gallagher, in further view of Gulliford, and in still further view of Lewis.

Claims 32-35 are patentable because they depend from claim 31.

Separately, with regard to claims 32-35, Applicants' Attorney submits that the use of four references, given the technology, in and of itself, is evidence that one of ordinary skill would not have had reason to combine the references. Nevertheless, assuming, *arguendo*, that Fluss, Gulliford, Lewis and Gallagher teach all the limitations of claims 32-35, the Examiner's reason for combining the references lacks technical merit. One of ordinary skill would not have had reason to combine the teachings of Fluss, Gulliford, Lewis and Gallagher

because doing so would impermissibly change Fluss' principle of operation. See, MPEP 2143.01(VI), for the reasons explained above with reference to claim 15.

The fee of $510 as applicable under the provisions of 37 C.F.R. § 41.20(b)(2) is enclosed. Please charge any additional fee or credit any overpayment in connection with this filing to our Deposit Account No. 02-3978.

Respectfully submitted,

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Enclosure - Appendices

VIII. CLAIMS APPENDIX

10. A method of distributing high-speed information packets to at least one subscriber unit, each information packet associated with an information channel, the method comprising:

routing each information packet through a distributed network of routing elements, each routing element in wireless communication with at least one other routing element in the network of routing elements;

receiving each information packet in a distribution center in communication with the distributed network of routing elements; and

forwarding each information packet to each subscriber unit in communication with the distribution center and requesting the information channel of which the information packet is associated.

11. A method of distributing high-speed information packets to at least one subscriber unit as in claim 10 wherein the information packets comprise video information.

12. A method of distributing high-speed information packets to at least one subscriber unit as in claim 10 wherein routing each information packet through a distributed network of routing elements comprises:

routing each information packet through a distributed network of distribution points; and

transmitting each information packet to an access point operative to communicate with a plurality of subscriber units.

13. A method of distributing high-speed information packets to at least one subscriber unit as in claim 12 wherein at least one distribution point functions as the distribution center.

14. A method of distributing high-speed information packets to at least one subscriber unit as in claim 12 wherein at least one access point functions as the distribution center.

15. A method of distributing high-speed information packets to at least one subscriber unit as in claim 10 further comprising:

receiving a request from a subscriber unit to access an information channel;

requesting transmission of the requested information channel if no other subscriber unit is receiving the requested information channel; and

noting that the requesting subscriber unit is receiving the requested information channel.

16. A method of distributing high-speed information packets to at least one subscriber unit as in claim 15 wherein receiving a request from a subscriber unit comprises determining that the requesting subscriber unit is within the coverage area of a distribution center.

17. A method of distributing high-speed information packets to at least one subscriber unit as in claim 15 wherein receiving a request from a subscriber unit comprises receiving a message from a subscriber unit.

18. A method of distributing high-speed information packets to at least one subscriber unit as in claim 15 further comprising transmitting a dummy address as the destination for the requested transmission of the requested information channel.

19. A method of distributing high-speed information packets to at least one subscriber unit as in claim 15 further comprising:

determining that a subscriber unit is no longer accessing the information channel;

canceling transmission of the information channel if no other subscriber unit is receiving the information channel; and

noting that the subscriber unit is no longer receiving the information channel.

20. A system for providing high-speed packetized information comprising a distributed routing network, the distributed routing network comprising a plurality of distribution points, each distribution point in the plurality of distribution points in radio contact with at least one other distribution point in the plurality of distribution points, at least one of the plurality of distribution points comprising at least one host digital terminal (HDT) for converting high-speed information packets to an optical format and forwarding the information packets to subscriber units.

21. A system for providing high-speed packetized information as in claim 20 wherein at least one subscriber unit is operative to receive information packets in an optical format.

22. A system for providing high-speed packetized information as in claim 20 further comprising at least one access point in communication with the at least one HDT, the access point operative to convert information packets in an optical format into a format compatible with copper cabling.

23. A system for providing high-speed packetized information as in claim 22 wherein at least one subscriber unit is in communication with the at least one access point through a network interface device.

24. A system for providing high-speed packetized information as in claim 22 wherein at least one access point functions as a video distribution center.

25. A system for providing high-speed packetized information as in claim 20 wherein high-speed packetized information is provided through a VDSL service.

26. A system for providing high-speed packetized information as in claim 20 wherein high-speed information includes video information.

27. A system for providing high-speed packetized information as in claim 20 wherein at least one distribution point functions as a video distribution center.

28. A system for providing packetized video information to a plurality of subscriber units comprising a distributed routing network, the distributed routing network comprising a plurality of distribution points, each distribution point in the plurality of distribution points in radio contact with at least one other distribution point in the plurality of distribution points, at least one of the plurality of distribution points functioning as a video distribution center.

29. A system for providing packetized video information to a plurality of subscriber units as in claim 28 wherein at least one of the distribution points is operative to receive requests for video content from at least one subscriber unit and forward those requests to at least one video supplier.

30. A system for providing packetized video information to a plurality of subscriber units as in claim 28 wherein at least one video distribution center forwards video information packets comprising a video channel to each subscriber unit served by the video distribution center requesting the video channel.

31. A system for providing packetized video information to a plurality of subscriber units comprising:

a distributed routing network, the distributed routing network comprising a plurality of distribution points, each distribution point in the plurality of distribution points in radio contact with at least one other distribution point in the plurality of distribution points; and

at least one access point in communication with the distributed routing network functioning as a video distribution center.

32. A system for providing packetized video information to a plurality of subscriber units as in claim 31 wherein the at least one access point is operative to receive requests for video content from at least one subscriber unit and forward those requests to at least one video supplier.

33. A system for providing packetized video information to a plurality of subscriber units as in claim 31 wherein the at least one access point replicates video information packets comprising a video channel for each of a plurality of subscriber units requesting the video channel.

34. A system for providing packetized video information to a plurality of subscriber units as in claim 31 wherein at least one access point is operative to

receive a request to access a video channel from a subscriber unit;

determine if the requested video channel is currently being accessed by another subscriber unit served by the access point; and

if the requested video channel is not currently being accessed by another subscriber unit served by the access point, forwarding the request to a video supplier.

35. A system for providing packetized video information to a plurality of subscriber units as in claim 34 wherein each of the at least one access point is further operative to

receive a video information packet from at least one video supplier;

determine if the received video packet corresponds to a video channel requested by more than one subscriber unit; and

forward the video packet to each subscriber unit requesting the video channel.

36. A system for distributing high-speed information packets to at least one subscriber unit, each information packet associated with an information channel, the system comprising:

a distributed network of routing elements for routing each information packet, each routing element in wireless communication with at least one other routing element in the network of routing elements; and

at least one distribution center in communication with the distributed network of routing elements and with at least one subscriber unit, each distribution center forwarding each information packet to each subscriber unit requesting the information channel associated with each information packet.

37. A system for distributing high-speed information packets to at least one subscriber unit as in claim 36 wherein the information packets comprise video information.

38. A system for distributing high-speed information packets to at least one subscriber unit as in claim 36 wherein the distributed network of routing elements comprises:

a distributed network of distribution points operative to route each information packet; and

at least one access point operative to communicate with a plurality of subscriber units.

39. A system for distributing high-speed information packets to at least one subscriber unit as in claim 38 wherein at least one distribution point functions as the distribution center.

40. A system for distributing high-speed information packets to at least one subscriber unit as in claim 38 wherein at least one access point functions as the distribution center.

41. A system for distributing high-speed information packets to at least one subscriber unit as in claim 36 wherein the at least one distribution center receives a request from a subscriber unit to access an information channel and requests transmission of the requested information channel if no other subscriber unit is receiving the requested information channel.

42. A system for distributing high-speed information packets to at least one subscriber unit as in claim 41 wherein at least one distribution center receives a request from a subscriber unit based on a determination that the requesting subscriber unit is within the coverage area of the at least one distribution center.

43. A system for distributing high-speed information packets to at least one subscriber unit as in claim 41 wherein at least one distribution center receives a request from a subscriber unit based on a message from a subscriber unit.

44. A system for distributing high-speed information packets to at least one subscriber unit as in claim 41 wherein at least one distribution center further transmits a dummy address as the destination for the requested transmission of the requested information channel.

45. A system for distributing high-speed information packets to at least one subscriber unit as in claim 41 wherein at least one distribution center notes that the requesting subscriber unit is receiving the requested information channel.

46. A system for distributing high-speed information packets to at least one subscriber unit as in claim 41 wherein at least one distribution center determines that a subscriber unit is no longer accessing the information channel and cancels transmission of the information channel if no other subscriber unit is receiving the information channel.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.